

Surface Area Calculations

7.6 - 7.8
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Students will learn how to calculate surface area of various 3-D shapes

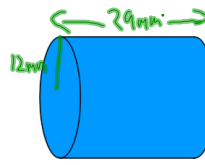
$$SA_{cyl} = 2\pi r^2 + 2\pi r h$$

$$SA_{prism} = 2(lw + lh + wh)$$

$$SA_{tri prism} = A_B + (a \times h) + (b \times h) + (c \times h) \\ = bh + (a \times h) + (b \times h) + (c \times h)$$

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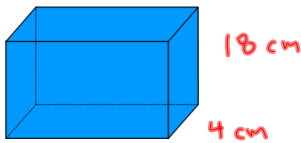
$$SA_{cyl} = 2\pi r^2 + 2\pi r L$$

$$SA_B = 2\pi(12)^2 + 2\pi(12)(29)$$

$$SA_{cyl} = 6.28(144) + 6.28(348)$$

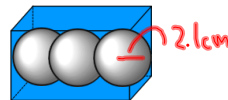
$$SA_{cyl} = 904.32 + 2185.44 \\ = 3089.76 \text{ mm}^2$$

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$$SA_{prism} = 2(lw) + 2(lh) + 2(wh) \\ = 2(4 \times 18) + 2(16 \times 4) + 2(16 \times 18) \\ = 2(72) + 2(64) + 2(288) \\ = 144 + 128 + 576 \\ = 848 \text{ cm}^2$$

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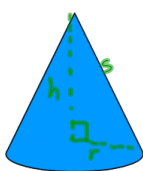


$$d = 4.2 \\ h = 3(4.2) = 12.6 \\ w = 4.2$$

$$SA_{prism} = 2(lw + lh + wh) \\ = 2[4.2(12.6) + 12.6(4.2) + (4.2)(4.2)] \\ = 2(52.92 + 52.92 + 17.64)$$

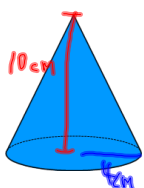
$$= 2(123.48) \\ = 246.96 \text{ cm}^2$$

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$$A_T = \pi r s + \pi r^2$$

$$s^2 = h^2 + r^2 \\ s = \sqrt{h^2 + r^2}$$



$$SA = \pi r^2 + \pi r s \\ = 3.14(4)^2 + 3.14(4)(10.7) \\ = 3.14(16) + 143.49 \\ = 50.24 + 143.49 \\ = 193.73 \text{ cm}^2$$

$$\begin{aligned} s &= \sqrt{h^2 + r^2} \\ s &= \sqrt{10^2 + 4^2} \\ s &= \sqrt{116} \\ s &= 10.7 \end{aligned}$$

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a) 2 b, 3, 7, 11 a) c) e)

12*

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